

Apparatus Having Forced Fluid Cooling And Pin-Fin Heat Sink

Abstract of Disclosure

A heat sink has a base plate and attached pin-fins with intake and discharge openings connected by a tubular channel. A pump moves cooling fluid across the exterior surface of the pin-fins, as well as the interior surface of the tubular channels, thereby increasing the surface area exposed to the cooling fluid. In one embodiment, the cooling fluid moves parallel to the base plate, and the discharge openings are oriented to discharge fluid in the same direction as the pump output, ± 90 degrees. Baffles may be added to duct the cooling fluid over the heat sink. In another embodiment, the cooling fluid moves perpendicular to the base plate and the discharge openings are oriented to vent the cooling fluid along lines that extend outward from a center point of the base plate, or along radial lines drawn from a central point through the pin-fins.

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